ELSENT: AUTOMATED SENTIMENTAL ANALYSIS BASED ON COGNITIVE APPROACH

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Abstract

The human brain is not just a device for interpreting information; it is also a system in which cognitive and affective processes are intimately connected. Any learning process involves this interaction between emotion and cognition, with cognition interacting with the learning material and emotion supplying the requisite mental resources. The synthesis of learner's expressions in the teaching-learning context and the effective managing of these emotions during the learning process in the first approach, and emotion in the second approach which is one affective domain category that requires further growth have been the subject of two separate approaches to emotion research in teaching-learning contexts.

Evidential data shows that students do not switch feelings at will, but that there are certain patterns; committed learners will feel cognitive disequilibrium and uncertainty when confronted with challenges, and inability to regain stability will result in dissatisfaction. Online learning environments that depend on text-based asynchronous communication can intensify the degree of student anxiety, in comparison to face-to-face teaching-learning situations, where issues may usually be addressed and overcome more easily.

Sentiment analysis, described as "the task of automatically deciding the valence or polarity of a piece of text, is a promising solution. Sentiment analysis could be described as a noninvasive, non-obtrusive, low-cost method, based on the design requirements for emotion sensing systems. The aim of ELSent is to investigate the ways in which sentiment analysis has been introduced in the educational domain; and to discuss the methods that researchers have used in designing sentiment analysis frameworks on educational datasets. ELSent is an improved classification model which has given preprocessing, data imbalance and negation handling more attention and investigate what is the most suitable classifier which gives human like accuracy for an educational dataset. After doing a comparison between classifiers CatBoost classifier outperformed by getting a 77% accuracy using educational dataset.

Keywords:
Sentiment Analysis, Education Domain, Machine Learning, CatBoost Classifier, XGBoost Classification, Random Forest